

1020000080608

What is claimed is:

1. An isolated polynucleotide coding for an arabinose isomerase from *Thermotoga neapolitana*.
2. The isolated polynucleotide of claim 1 having the sequence of SEQ. ID NO: 3.
3. An isolated polypeptide of arabinose isomerase encoded by the polynucleotide of claim 2 and having the amino acid sequence of SEQ. ID NO: 4.
4. A recombinant expression vector comprising the isolated polynucleotide of claim 1.
5. The recombinant expression vector of claim 1, wherein the expression vector is pTNAI comprising the isolated polynucleotide having the sequence of SEQ. ID NO: 3 and a sequence map shown in FIG. 1.
6. A host cell transformed with the recombinant expression vector of claim 4.

1020000030608

7. The host cell of claim 6, wherein the host cell is *E. coli* BL21/DE3 (pTNAI) deposited as Accession No. KCCM-10231.

8. A method of producing an arabinose isomerase, the method comprising:

providing the host cell of claim 7; and

culturing the host cell in a medium, thereby producing an arabinose isomerase.

9. A method of producing tagatose, comprising:

providing the isolated polypeptide of claim 3; and

admixing the arabinose isomerase with galactose at a pH from 5 to 8 and temperature of 100 °C, thereby causing a reaction and producing tagatose.

10. The method of claim 9, wherein the isolated polypeptide is attached a solid support.